

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A plasma processing method having a first and a second plasma processing step carried out in a single chamber, wherein deposits are substantially accumulated in the chamber during the first plasma processing step, the method comprising the step of:

dry cleaning an inside of the chamber by using a dummy substrate between the first and the second plasma processing ~~step~~ steps,

wherein the dry cleaning step is performed by supplying into the chamber a deposit removing gas for removing the deposits produced in the chamber during the first plasma processing step and supplying a dummy substrate etching gas ~~capable of etching that etches~~ the dummy substrate~~[[,]]~~ and ~~to stabilize~~ stabilizes an etching rate of the second plasma processing step, which is carried out right after the dry cleaning step,

wherein the second plasma processing step includes a plasma etching performed without producing deposits in the chamber, and

wherein a first CF-based gas is supplied in the first plasma processing step, and a second CF-based gas ~~are used~~ is supplied in the ~~first and the~~ second plasma processing step, ~~respectively~~, and the first CF-based has a different composition from the second CF-based gas such that a fluorine/chlorine fluorine/carbon (F/C) ratio of the first CF-based gas is smaller than that of the second CF-based gas.

Claim 2 (Original): The plasma processing method of claim 1, wherein the deposit removing gas is an oxygen gas, a nitrogen gas, a hydrogen gas, an ammonia gas or a combination thereof.

Claim 3 (Original): The plasma processing method of claim 1, wherein the dummy substrate etching gas is one of a CF-based gas, a CHF-based gas and a SF-based gas.

Claim 4 (Original): The plasma processing method of claim 1, wherein the deposit removing gas is an oxygen gas and the dummy substrate etching gas is CF₄.

Claim 5 (Original): The plasma processing method of claim 1, wherein a surface of the dummy substrate is made of a material having silicon.

Claim 6 (Currently Amended): A plasma processing method comprising the sequential steps of:

performing a first plasma etching in a chamber, during which deposits are produced and accumulated in the chamber;

dry cleaning an inside of the chamber by using a dummy substrate; and

performing a second plasma etching without producing deposits in the chamber,

wherein the dry cleaning step is performed by supplying into the chamber a deposit removing gas for removing the deposits and a dummy substrate etching gas capable of etching the dummy substrate to stabilize an etching rate of the second plasma etching step carried out right after the dry cleaning step,

wherein a ratio of a flow rate of the dummy substrate etching gas to that of the deposit removing gas is not less than about 0.14% but not larger than about 7.1%, and

wherein a first ~~and a second~~ CF-based gas ~~[[are]]~~ is used in the first ~~and the second~~ plasma etching, ~~respectively~~, a second CF-based gas is used in the second plasma etching, and the first CF-based gas has a different composition from the second CF-based gas such

that and a fluorine/chlorine a fluorine/carbon (F/C) ratio of the first CF-based gas is smaller than that of the second CF-based gas.

Claim 7 (Previously Presented): The plasma processing method of claim 6, wherein a high frequency power applied to one of a top and a bottom electrode during the step of dry cleaning ranges from about 3.18 W/cm^2 to about 4.78 W/cm^2 .

Claim 8 (Original): The plasma processing method of claim 6, wherein the deposit removing gas is an oxygen gas, a nitrogen gas, a hydrogen gas, an ammonia gas or a combination thereof.

Claim 9 (Original): The plasma processing method of claim 6, wherein the dummy substrate etching gas is one of a CF-based gas, a CHF-based gas and a SF-based gas.

Claim 10 (Original): The plasma processing method of claim 6, wherein the deposit removing gas is an oxygen gas and the dummy substrate etching gas is CF_4 .

Claim 11 (Original): The plasma processing method of claim 6, wherein a surface of the dummy substrate is made of a material having silicon.

Claim 12-19 (Canceled).

Claim 20 (New): The plasma processing method of claim 6, wherein the ratio of the flow rate of the dummy substrate etching gas to that of the deposit removing gas is not less than about 0.29%, but not larger than about 1.4%.

Claim 21 (New): The plasma processing method of Claim 1,
wherein the supplying the first CF-based gas includes supplying C_4F_8 ,
wherein the supplying the deposit removing gas and supplying the dummy substrate
etching gas in the dry cleaning step includes supplying O_2 and CF_4 , respectively, and
wherein supplying the second CF-based gas includes supplying CF_4 , O_2 , and Ar.

Claim 22 (New): The plasma processing method of Claim 21,
wherein the first CF-based gas, supplied in the first plasma processing step, consists
of C_4F_8 ,
wherein the deposit removing gas supplied in the dry cleaning step consists of O_2 , and
the dummy substrate etching gas consists of CF_4 , and
wherein the second CF-based gas, supplied in the second plasma processing step,
consists of CF_4 , O_2 , and Ar.

Claim 23 (New): The plasma processing method of Claim 22, wherein the deposit
removing gas consisting of O_2 is supplied at a flow rate of at least 700 sccm, and the dummy
substrate etching gas consisting of CF_4 is supplied at a flow rate of at least 2 sccm.

Claim 24 (New): The plasma processing method of Claim 1,
wherein the first and the second plasma processing steps and the dry cleaning step are
carried out without a seasoning step occurring between the dry cleaning and the second
plasma processing step, the second plasma processing step is stabilized by the cleaning step
such that an etch rate at a beginning of the second plasma processing step is approximately
equal to an etch rate five minutes after beginning the plasma processing step.

Claim 25 (New): The plasma processing method of Claim 6,
wherein the supplying the first CF-based gas includes supplying C_4F_8 ,
wherein the supplying the deposit removing gas and supplying the dummy substrate
etching gas in the dry cleaning step includes supplying O_2 and CF_4 , respectively, and
wherein supplying the second CF-based gas includes supplying CF_4 , O_2 , and Ar.

Claim 26 (New): The plasma processing method of Claim 25,
wherein the first CF-based gas, supplied in the first plasma processing step, consists
of C_4F_8 ,
wherein the deposit removing gas supplied in the dry cleaning step consists of O_2 , and
the dummy substrate etching gas consists of CF_4 , and
wherein the second CF-based gas, supplied in the second plasma processing step,
consists of CF_4 , O_2 , and Ar.

Claim 27 (New): The plasma processing method of Claim 26, wherein the deposit
removing gas consisting of O_2 is supplied at a flow rate of at least 700 sccm, and the dummy
substrate etching gas consisting of CF_4 is supplied at a flow rate of at least 2 sccm.

Claim 28 (New): The plasma processing method of Claim 6,
wherein the first and a second plasma etching step and the dry cleaning step are
carried out without a seasoning step occurring between the dry cleaning and the second
plasma processing step, the second plasma etching step is stabilized by the cleaning step such
that an etch rate at a beginning of the second plasma etching step is approximately equal to an
etch rate five minutes after beginning the plasma etching step.